

TORREYA

Vol. 31

July-August, 1931

No. 4

Some notes on vegetational change

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During the winter of 1928, while looking through "The Plant Life of Maryland," (1) I ran across a statement by Dr. Forrest Shreve in which he says, "Where extensive clearings exist and scarcely any areas of virgin forest remain, as is the case in Maryland, it is extremely difficult to reconstruct a picture of the virgin vegetation, and equally difficult to draw wholly satisfactory conclusions as to the relation between natural vegetation and the physical conditions. Particularly is the character of the forests changed by clearing." The statements did not seem to me to be entirely justified, so at my first opportunity, which happened to be the following summer, I spent some little time unearthing what records I could find at the Library of Congress which bore any references to the early vegetation of Maryland or adjacent territory. While there is undoubtedly some literature there which I did not find, and some elsewhere which was not available to me at the time, I was able to uncover a number of references to the flora of that region at approximately the time of the first European settlements there. While these writings do not entirely fulfill my original purpose in making the study, they do throw some light on the vegetation of the region at an early date. It has been necessary to cut the quotations down to include only those which give the most information on the points in question, a proceeding which has eliminated many of the most interesting passages.

Among the passages which follow will be found some concerning the country as far north as the New England States and as far south as the Carolinas: these have been included because they fall within the same vegetational area as Maryland and Virginia, and because the entire eastern portion of the country has been subjected to much the same processes of lumbering and cultivation. The numbers in black type refer to the literature citations at the end of the paper.

2: 218-219. "The products of Virginia and Maryland differ

considerably from those of Pennsylvania, from their nearer neighborhood to the sun. As to timber and wood, they have all the sorts that are found upon the continent; many sorts of oaks, cedars, firs, cyprus, elm, ash and walnut; some of their oaks are said to measure two feet square and sixty feet in height. They have also, beech, poplar, hazel, besides sassafras, sarsaparilla, and other dying woods. The unsettled country is all a forest of these trees, without underwood, and not standing so close but they may anywhere be rode through. Near the coast the lowlands are all swamps from which grow cedars, pines, and cypresses."

2: 270-271. "There is the greatest reason to suppose that vineyards would thrive here advantageously, from the uncommon plenty of wild vines found in the woods, through all the back country."

3: 50-56. "Filberd, both with hairy husks upon the Nuts, and setting hollow from the Nut, and filled with a kind of water of an astringent taste . . . The Kernals are seldom without maggots in them. Walnut; the nuts differ much from ours in Europe, they being smooth, much like a nutmeg in shape, and not much bigger; some three cornered; all of them but thinly replenished with kernels.

"Chestnuts; very sweet in taste and may be (as they usually are) eaten raw; the Indians sell them to the English for twelve pence the bushel.

"Beech, Ash, Quick-beam or wild ash. Birch, white and black, . . . Poplar, but differing in leaf. Plumb Tree, several kinds, bearing some long, round, white, yellow, red, and black Plums; all differing in their fruit from those in England."

3: 30. "Oak of Hierusalem. Oak of Cappadocia. Wild cherry, they grow in clusters like grapes, of the same bigness, blackish, red when ripe, and of harsh taste.

"Board Pine, is a very large tree two or three fadom about. It yields a very sovereign turpentine for the curing of desperate wounds.

"Firr tree or Pitch tree

"The Larch Tree, which is the only Tree of all the Pines, that sheds its leaves before winter.

"Spruce is a goodly tree of which they make masts for ships, and Sail Yards . . . , many of them (trees) being three fathom about and of great length.

“. . . Green Spruce Hemlock tree, a kind of Spruce.
“Sassafras, or ague tree.”

4: 30. “*Ulmus*”

4: 41. “*Acer*, leaves angular palmate, flowers almost apetalous, sessile, fruit peduncled corymbose.

“*Acer virginianum*, leaves large, silvery beneath, shiny green above.

“*Acer*, red flowered, leaves large, green above, shining silvery beneath.

“Plantano, exudes an odoriferous gum. (Sweet gum.)”

4: 58. “*Tilia*—leaves large, mucronate.”

4: 60. “*Liriodendron*. *Tulipifera arbor virginiana*.”

4: 115. “*Alnus communis* Clayt. *Betula* . . . twigs pliant, lenticels. *Quercus* . . . , leaves lanceolate, entire, (Willow oak). *Quercus alba* (White oak). *Quercus*—cuneate trilobate, deciduous (Water oak). *Quercus*—with chestnut leaves, (Chestnut oak). *Quercus*—(Red oak). *Juglans nigra*. *Juglans alba*. *Fagus* with leaves lanceolate to acute ovate, serrate *Castanea pumila* (chinquapin bush). *Fagus vulgaris* Clayt. *Corylus* with a round and hard kernel, Clayt. *Castanea* with a sweet fruit Clayt. *Carpinus* *Platanus occidentalis*.”

4: 119. “*Pinus*, with cones arising in clusters, leaves long, three from each sheath. Clayt. (Cluster pine). *Pinus* . . . with smaller cones less clustered together Clayt. (Spruce pine). *Cupressus virginiana*.”

4: 121. “*Nyssa* with a many flowered peduncle. *Nyssa* with a one flowered peduncle. *Morus* with small leaves. *Fraxinus* with entire leaflets.”

5: 5. “It is an excellent country for Dying-Stuff and curious simples, as also for several other curious woods used in wainscoating and cabinet, such as cedar, cypress, sassafras, blackwalnut etc.”

6¹: 11. “*Cupressus americana*. The cypress, (except the tulip tree) is the tallest and largest in these parts of the world. Near the ground some of 'em measure 30 foot in circumference, rising pyramidally six foot, where it is about two thirds less; from which to the limbs, is usually 60 or 70 foot, it grows in proportion of other trees.”

6¹: 18. “The Chestnut Oak. This oak grows only in low and very good land, and is the tallest and largest of the oaks in these parts of the world”

6¹: 19. "*Quercus (forte) marylandica*. The Black Oak. Usually grows on the poorest land and is small."

6¹: 21. "*Quercus Alba Virginiana* Park. The white oak. This nearest resembles our common English Oak in the shape of it's leaves, acorns and manner of growing; It grows on all kinds of land, but most on high barren ground amongst Pine trees.

"There is another kind of white oak which in Virginia is called the Scaly White Oak They grow on rich land both high and low:

"*Quercus caroliniensis*. The White Oak with Pointed Notches. The leaves of this oak are notched, and have sharp points."

6¹: 23. "*Quercus* The Red Oak. The leaves of this oak retain no certain form They grow on high land."

6¹: 34. "*Populus nigra* leaves large The Black Poplar of Carolina. They are large and very tall."

6¹: 38. "*Nux Juglans alba virginiensis* Park. The Hicory tree. This is usually a tall tree and usually grows to a large bulk, the Body usually being from two to three feet diameter. *Nux Juglans Caroliniensis* with a small fruit The Pignut. The White Walnut. Another walnut remains to be observed which I never saw but in Virginia and is there called the white walnut. The tree is usually small"

6¹: 41. "A tree growing in water, leaves wide acuminate and not dentate. Fruit smaller than the *Eleagnus*. The Tupelo Tree. This tree usually grows large and spreading The grain of the wood is curled and very tough. They grow usually in moist places, in Virginia, Maryland, and Carolina."

6¹: 48. *Arbor Tulipifera Virginiana* with three parted maple shaped leaves. This tree grows to a very large size, some of them being thirty foot in circumference These trees are found in most parts of the northern continent of America, and generally on very good land."

6¹: 56. "*Platanus occidentalis*. The Western Plane Tree. This tree usually grows very large and tall In Virginia they are plentifully found in all the lower parts of the country, but in Carolina there are few except in the hilly parts, particularly on the banks of Savanna River."

6¹: 60. "A tree growing in water wide acuminate dentate leaves fruit larger than the *Eleagnus*. The Water Tupelo. This tree has a large trunk, especially near the ground, and grows

very tall. These trees always grow in wet places and usually in the shallow parts of rivers and in swamps."

6¹: 62. "*Acer virginianum*, large leaves, silvery beneath, strongly shining above. The Red Flowering Maple. These trees grow to a considerable height, but their trunks are not very large."

6¹: 67. "*Nux Juglans nigra Virginiensis* Park. The Black walnut. Most parts of the Northern Continent of America abound with these trees, particularly Virginia and Maryland, toward the Heads of the Rivers where in rich low Land they grow in great Plenty and to a vast size."

6¹: 63. "*Amelanchier virginiana* The fringe tree. On banks of Rivulets and running Streams this Shrub is most commonly found."

6²: 65. "Liquid-Amber Tree. The Sweet Gum Tree."

6²: 76. "Guajacóna. These trees grow plentifully in Carolina, Virginia and most of the Northern Colonies in America." (Evidently persimmon.)

6²: XXII. "There are in Carolina, four kinds of Pine trees which are there distinguished by the names of Pitch Pine, Rich land Pine, Short leav'd Pine, Swamp Pine. The Pitch Pine is the largest of all the Pine trees and mounts to greater height than any of them These trees grow mostly on the poorest land. The Rich land Pine is not so large a tree; . . . they grow in better land than the Pitch Pine. The Short leav'd Pine is usually a small tree with short leaves and small cones. It delights in middling land and usually grow mixed with oaks. Swamp Pine grows on barren wet land; they are generally tall and large There is also in Carolina a fir which is called Spruce-Pine."

7: 11. "There is near Cumberland and within ten or twelve miles of the river (Potomac) a tract of country that abounds with very large white pine trees, suitable for masts of ships; some of these trees are from five to six feet in diametre and run up one hundred feet without a branch."

8: 16. "The woods for the most part are free from under-wood, so that a man may travel on horsebacke, almost anywhere, or hunt for his recreation."

8: 18. "The timber of these parts is very good and in abundance . . . ; the white Oake is good for pipe staves, the red Oake for wainsot. There is also Walnut, Cedar, Pine, and Cypresse, Chestnut, Elme, Ashe, and Poplar, all of which are

for building and Husbandry. Also there are divers sorts of fruit trees, as Mulberries, Persimmons, with several other kind of Plummes, and Vines in great abundance."

9: 22. "To goe yet a little further, I know no one countree yielding without art or industry so manie fruites sure I am England doth not; wild grapes in abundance all the woods over, their juice sweet and pleasant in taste, some of them wee haue replanted in a vineyard adioyning to Henrico, the quantity of three or four Akres which were this year very plentifully laden Cherries little inferior to ours, which if we planted may prooue as much better as now they are worse. Pissmienplums in bygnes and fashion like a Medlar like to a slipticke quality, other sorts of plums like to our wheat plums and in goodness answerable: great fields and woods abounding with strawberries much fairer and more sweet than ours, Mulberries of much bignesse, and about the Bermuda Cittie Hundirds thereunto belonging great store thereof, Moricocks of the fashion of a Lemmon whose blossome may admit comparisome with our most delightsome and bewtifull flowers, and the fruit exceedingly pleasant and tasteful; chestnut-trees towards the fals as many as oakes, and as fertile, many goodly groves of Chincomen Trees with a huske like unto a chesnut, raw or boyled, luscious and harty meate; walnuts of three or four sorts; . . . some filberds have I seen; crabbes great store, lesse but not so sower as ours."

10: 35. "The whole country is a perfect forest except where the woods are cleared for Plantations, and old fields, and where have been formerly Indian towns, and Poisoned fields and Meadows where the Timber has been burnt down in Fire-Hunting or otherwise; and about the creeks and rivers are large rank morasses or marshes and up the country are poor Savannahs."

10: 38. "As for timber they abound with excellent good; having about eight sorts of oak, several kinds of walnut trees and Hickory and Pignut, Pine, Cedar, Cypress for shingles"

10: 128. "Then as for oak, no country has finer or more plenty; . . . and I question if Gottenburgh or any other port of Europe can afford us better pines for Masts and Yards . . . than what grow in Virginia in several places in very great plenty;"

10: 141. "Thus suppose we should have more of the following things than our own use requires . . . , such as timber for Ship and House Carpenters, and Cabinet makers, Joyners etc,

such as Oak, Deal, Walnut, Hickory, Cedar, Cypress, Locust and the like”

11: 27–28. “Whereas that part of America or North Virginia lying about 39 degrees on Delaware Bay called the Province of New Albion, . . . and replenished with the goodliest woods of oaks . . . , mulberries, sweet cypress, cedars, pines and firres, 4 sorts of grapes for wine and raisons.”

11: 28–30. “. . . and the woods bestrewed many moneths with chestnuts, wall-nuts and mast of several sorts to feed them (sheep). There the barren grounds have four kinds of grapes and many mulberries with ash elms and the tallest and greatest pines and pitch trees that I have seen. There are cedars, cypresse and sassafras with wilde fruits, pears, wilde cherries, Pineapples and the dainty Parsemenas.”

12: 3. “The names of those streets (of Philadelphia) are mostly taken from the things that spontaneously grow in the country, as Vine-Street, Mullberry-Street, Chesnut-Street, Wallnut-Street, Strawberry-Street, Cranberry-Street, Plumb-Street, Hickory-Street, Pine-Street, Oake-Street, Beech-Street, Poplar-Street and the like.”

13: 73. “Thee need not collect any more Tulip Cones, Swamp Laurel Cones, Hickory, Black Walnut, Sassafras or Dogwood, Sweet gum, White Oak Acorns, Swamp Spanish Oak, nor Red Cedar berries; but all other sorts of acorns, Firs, Pines, Black Gum, or Black Haw, Judas Tree, Persimmon, Cherries, Plums, Services, Hop Tree, Benjamin, or allspice; All the sorts of Ash, Sugar Tree, Wild Roses, Black Beech, or Hornbeam; all sorts of flowering and berry bearing shrubs, Honey Locust, Lime Tree, Arrow Wood, a particular Locust, Guelder Rose, not anything can come amiss to thy friend and in particular to thy true friend.—P. Collinson.”

13: 75. “I am informed that the Jerseys is noted for producing abundance of Firs and Pines.”

13: 79. “Friend John, June 17, 1736.

I have now a very curious account before me, sent by Paul Dudley from his house in Roxbury, New England, Oct. 24, 1735, who very ingeniously describes the evergreens of New England, in two sheets of paper. This is his catalogue—

‘White Pine. Pitch Pine. Saplin or Pople Pine. Apple Pine. Hemlock, a small fir. Spruce tree, distinguished into white,

black and red, from the color of the bark and leaf. White Cedar, Red Cedar. Savin. Juniper. Ivy, a shrub. Box.' "

13: 82. "We have raised a pretty many fine plants from the tree in the Jerseys. It is a real Lotus or Nettle Tree (*Celtis occidentalis* L.), and is a native of your part of the world; is found in Virginia and in other parts."

13: 110. "I had the pleasure of thine from Maryland. . . . the Laurels are perfectly fine. That and the white cedar are very acceptable."

13: 194. "A journey to the Katskill Mountains, 1753. We set out on the first of September, and travelled forty miles; the next day we travelled near fifty and the next day crossed the South Chains, being three ridges of our Blue Mountains, on Jersey side, where we stayed . . . to rest ourselves, and observe the vegetables that grew thereon; which were Mountain Chestnut oak, Mountain or Champagne Red Oak, and some Spanish Oak, Sassafras, Chestnut and Maple; Ash, black and white, Wild Cherry, Persimmon, and three leaved pine. Shrubs, sweet fern, and in swampy places, Prinos; and very good Fox Grapes. . . . (*Alnus incana*) which is plentiful in this part of the country."

13: 232. "I have sent thee seeds of almost every tree and shrub from Nova Scotia to Carolina; very few are wanting, and from the sea across the continent to the lakes. J. Bartram."

RESUMÉ

While the quotations just given do not give us a complete picture of the former vegetation, they do enable one to draw some conclusions as to its character. The woods were apparently freer from underbrush than is the case at present, a condition which may be attributed directly to the absence of man and his improvements via the axe, plow and fire. The large size attained by many of the trees is further evidence that there was little or no disturbance and the forests consequently largely closed. In undisturbed stands of timber at the present time this condition is sometimes met with, though it is by no means common.

In a number of the references there seems to be some confusion as to certain of the species of conifers, a condition which may probably be corrected by substituting Hemlock for Spruce and Fir where these are given occurring south of their present

range. The stand of white pine described near Cumberland, Maryland is, however, quite possibly correct, since the present range of the white pine includes that region. According to Dr. Shreve, however, there is no such forest near there at the present time.

CONCLUSIONS

From the evidence given, we may say with reasonable certainty:

1. That the woods were once much more open and many of the trees a great deal larger than they are at present.
2. That the composition of the forests may have been different from that of today, but if it was, we have no evidence for assuming that the difference was very pronounced.

I wish to thank Dr. Forrest Shreve for his reading and criticism of this paper.

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